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Dated: 09/03/2009 7:00 PM EDT

By: /Michelle Chew Wong/
Michelle Chew Wong

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Ian G. Brown, et al.	Confirmation No:	6914
Serial No.:	10/809,269	Group No.:	1657
Filed:	03/24/2004	Examiner:	William H Beisner
Title:	Biosensor Employing Large Patterned Arrays of Cells on CCD Chips		

**DECLARATION OF DR. IAN G. BROWN
UNDER 37 CFR 1.132**

1. My name is Ian G. Brown, Ph.D. I am a plasma physicist and materials scientist. I have approximately 40 years of experience in the fields of plasma physics and materials science combined. My curriculum vitae is attached.
2. I am a named inventor on the above cited application. I have read the presently pending claims 1-5 and 7-36 as currently amended. The presently pending claims cover the biosensor that I along with the other named inventors, invented and now claim.
3. I have also read the Office Action dated April 5, 2009, the "Office Action." I have also read the prior art cited by the Office in the Office Action, namely Kovacs et al., Lu et al., Frank et al., and Miyamoto et al. I submit this declaration to provide evidence on the record as to the nonobviousness of my claimed invention in response to the rejections made in the Office Action.
4. We demonstrated diamond-like carbon directed cell adhesion and patterning for the first time in "Growth of Large Patterned Arrays of Neurons using Plasma Methods", I.G. Brown,

K.A. Bjornstad, E.A. Blakely, J.E. Galvin, O.R. Monteiro and S. Sangyuenyongpipat, Plasma Phys. Control. Fusion 45, 547-554 (2003); ***Invited Paper*** presented at the 11th International Congress on Plasma Physics, (ICPP'02), Sydney, Australia, July 15-19, 2002. None to very little cell growth was observed where DLC was not patterned. This was an important advantage because this allowed us to contain the cell growth immediately over the CCD sensor in a patterned manner.

5. One goal was to keep the cells in close or direct contact with the underlying CCD array for electrostatic detection of the cells and their activity using the CCD array. Thus, we used a thin protective film of micron-range thickness as opposed to the cell culture containers taught by these four cited references which feature centimeter thickness. It also had not been shown prior that thin films could be used to protect the sensitive electronics in a CCD array and that cells would remain viable for long-term growth (upwards of days and weeks at a time).

6. Prior to this time, others had only contemplated photographing cells with CCD cameras and detecting their electrostatic activity using microelectrodes. Others who had tried to pattern neuronal growth had to often resort to practices such as impaling neurons to control or direct their growth. In contrast, the novel use of the CCD for electrostatic detection in combination with the ability to pattern cell growth allowed us to control cell growth and detect cellular activity passively through electrostatic detection. This allowed us to make a biosensor using neurons-- the coated CCDs with DLC feature millions of individual sensors that can record changes in electrical potential from individual neurons in real time while precisely mapping each neuron's activity within the neural network.


7. We previously attached a copy of a special press release (Exhibit A) which describes that this invention was also nominated and awarded an R&D 100 award by R&D100 Magazine for this technology. As the magazine states on its website, "The winning of an R&D 100 Award provides a mark of excellence known to industry, government, and academia as proof that the product is one of the most innovative ideas of the year." R&D Magazine has been presenting these awards to the top 100 innovative ideas and inventions annually since 1963.

8. Our team was also awarded special DARPA funding to develop this biosensor invention, and our proposal received high marks when we applied for this funding. Furthermore, the licensee of this technology has received continued DARPA funding for the development of this technology. This funding was received several years in a row, despite that the funding is usually only given once and not normally renewed.

9. In my opinion, the Examiner has not appreciated this invention is well-beyond taking pictures of cells using a CCD camera through a cell plate as suggested by Miyamoto. Making transparent films that can pattern cell growth on a CCD array and using the CCD array for electrostatic detection of cell growth and activity were not obvious uses or advantages that flowed from the prior art. As shown in the Berkeley Lab news release, others in the field have recognized the invention as being novel and innovative as “the first step in creating combined biological and electronic chip biosensors and implants that can provide networks of living, interconnected cells for testing drugs and sensing toxins for homeland security.”

10. I have been warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. All statements made of my own knowledge are true and all statements made on information and belief are believed to be true.

SIGNED:



Ian G. Brown, Ph.D.

Curriculum Vitae

Feb 2005

IAN G. BROWN

Senior Physicist (Retired)
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Berkeley, California

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Berkeley, California 94720

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Education: Postdoctoral Fellow, Princeton University, 1966-68
Ph.D. in Physics (Plasma Physics), University of Sydney, 1966
B.Sc. in Physics (with First Class Honors), University of Sydney, 1962

Professional Society Affiliations:

Fellow, American Physical Society
Fellow, Australian Institute of Physics
Fellow, Institute of Physics (U.K.)
Fellow, IEEE
Member, American Vacuum Society
Member, Materials Research Society

Professional Appointments:

2001	Retired from LBNL (presently "rehired retiree" with status of Senior Scientist)
1986-2001	Senior Physicist & Group Leader, Plasma Applications Group, Lawrence Berkeley National Laboratory
1978-79	Senior Visiting Research Fellow, University of Sydney, Australia
1974-86	Staff Scientist, Lawrence Berkeley Laboratory
1973-74	Assistant Professor of Physics, Florida Atlantic University
1971-73	Visiting Lecturer, University of California, Berkeley
1970-71	Guest Scientist, Max-Planck Institute for Plasma Physics, Munich, Germany
1968-70	Physicist, Lawrence Berkeley Laboratory, University of California
1966-68	Postdoctoral Research Associate, Plasma Physics Laboratory, Princeton University
1962-66	Research Student and Teaching Fellow, University of Sydney, Australia

Research Interests:

Novel applications of plasmas and ion beams. Plasma and ion beam interactions with surfaces. Ion implantation and material surface modification. New materials synthesis. Biological applications of plasma physics. Diamond synthesis. Thin film and multilayer deposition using plasma and ion beam techniques. High temperature superconductivity. Vacuum arc plasmas. Ion source research and development. Basic and applied plasma physics.

Teaching and Student Supervision:

Has taught at the University of California at Berkeley, Florida Atlantic University, and the University of Sydney. Has advised Masters and Doctoral level graduate students at Princeton University, the University of California at Berkeley, and Florida Atlantic University. Leads an active research team of scientists and post-docs, including a steady stream of visiting scientists, at the Lawrence Berkeley National Laboratory.

International Activities:

Has set up and carried out research collaborations with groups at Universities and Institutes in Australia, Brazil, China, Germany, Hong Kong, Israel, Japan, Korea, Thailand, Turkey, Russia and Ukraine. Has been a Visiting Scientist at: University of Sao Paulo, Brazil ('95,'97,'99,'00,'02); Kyoto University ('99); City University of Hong Kong ('98); Southwest Jiatong University, Chengdu, China ('02); Dokuz Eylul University, Izmir, Turkey ('97); Chiang Mai University, Thailand ('96,'00,'01,'02); Sydney University ('78-'79,'90,'02).

Awards and Research Recognition:

- | | |
|---------|---|
| 2005 | R&D-100 Award "For Neural Matrix CCD" as "one of the 100 most technologically significant new products of the year" |
| 2004 | Winner of LBNL Technology Transfer Excellence Award |
| 1996 | Elected to Fellow of the Institute of Electrical and Electronic Engineers, "For developing the state-of-the-art Mevva intense metal (and carbon) vapor vacuum arc ion source for accelerators and for industry" |
| 1994 | Elected to Fellow of the American Physical Society, "For significant contributions to applied plasma physics, particularly its use in materials sciences and surface modification as well as development and study of vacuum arc ion sources" |
| 1993 | Elected to Scientific Membership of the Böhmische Physical Society "For original research in ion and plasma synthesis of high performance coatings" |
| 1992 | R&D-100 Award "For DC Broad-Beam High-Current Metal Ion Source" as "one of the 100 most technologically significant new products of the year" |
| 1989 | Winner of LBNL Technology Transfer Excellence Award |
| 1988 | Winner of special award for Excellence in Technology Transfer by the U.S. Federal Laboratory Consortium, "For the design, development and active transfer of the microMevva and Mevva (metal vapor vacuum arc) ion source technologies to industry and to educational institutions" |
| 1985 | IR-100 Award for development of "high current ion source (Metal Vapor Vacuum Arc Ion Source, MEVVA)" as "one of the 100 most technologically significant new products of the year" |
| ongoing | Co-inventor of fourteen patented inventions related to plasma, ion source, and surface modification |

Founder, Plasma Applications Group, Lawrence Berkeley National Laboratory.

Founder, Biennial conference series, Int'l. Conf. on Ion Sources, following a 20 year hiatus.

Inventor, the MEVVA (Metal Vapor Vacuum Arc) ion source.

Publications and Conference Presentations:

Book on ion source physics that has become a standard in the field

8 invited book & encyclopedia chapter contributions

about 400 papers published in refereed journals

about 350 conference presentations, including about 30 Invited / Keynote presentations

15 patents

Advisory and Honorary Positions:

- 2008– Editorial Board, *Journal of Southwest Jiaotong University*
- 2007– Consulting Editor, *Review of Scientific Instruments*
- 2006 U.S. Particle Accelerator School, Phoenix, AZ, January '06; Lecturer on Ion Sources
- 2002– Editorial Board, *China Surface Engineering*
- 2001 U.S. Particle Accelerator School, Long Beach, CA, January '01; Lecturer on Ion Sources
- 1999 Chair, American Institute of Physics Search Committee for Editor of Rev. Sci. Instrum.
- 1999 U.S. Particle Accelerator School, Nashville, TN, January '99; Lecturer on Ion Sources
- 1994– Editorial Board, *Plasma Sources: Sci. & Technol.*
- 1992 U.S. Particle Accelerator School, Austin, TX, January '92; Lecturer on Ion Sources
- 1988–90 Editorial Board, *Review of Scientific Instruments*
- 1988–90 Consultant, Eaton Corp.
- 1987–88 Consultant, Texas A&M University
- ongoing Reviewer for scientific journals, including Appl. Phys. Lett., Appl. Optics., Diamond & Rel. Mat., IEEE Trans. Plasma Sci., J. Appl. Phys., J. Mat. Res., J. Vac. Sci. Tech., Nucl. Instrum. & Meth., Plasma Physics, Phys. Rev. Lett., Plasma Sources Sci. & Technol., Rev. Sci. Instrum., Surface & Coatings Technol., Thin Solid Films
- ongoing Reviewer for research proposals for DOE, DOD, NSF, NRC, STC, SBIR (USA); ARGC (Australia); INSF (Israel).

Scientific Conference Service:

- 2008 Int'l Advisory Committee, 15th Int. Symp. on High-Current Electronics and 9th Int. Conf. on Modification of Materials with Particle Beams and Plasma Flows, Tomsk, Russia, September 2008
- 2008 Int'l Advisory Committee, Int'l Conf. on Plasma Physics & Controlled Fusion, Alushta, Ukraine, Sep. '08.
- 2007 Program Committee, 15th Int. Conf. on Surface Modification of Materials by Ion Beams, Mumbai, India, Sep 2007.
- 2006 Int'l Advisory Committee, 8th Int. Conf. on Modification of Materials with Particle Beams and Plasma Flows, Tomsk, Russia, Sep 2006.
- 2006 Int'l Advisory Committee, Int'l Conf. on Plasma Physics & Controlled Fusion, Alushta, Ukraine, Sep. '06.
- 2005 Int'l Advisory Committee, 11th Int. Conf. on Ion Sources, GANIL, France, Sep. '05.
- 2005 Int'l Program Committee, 14th Int. Conf. on Surface Modification of Materials by Ion Beams, Kusadasi, Turkey, Sep. '05
- 2005 Int'l Advisory Committee, 11th Int. Conf. on Ion Sources, Caen, France, Sep. '05
- 2004 Int'l Advisory Committee, 2nd Int'l Workshop on Particle Beams & Plasma Interaction on Materials and 2nd Asia Symposium on Ion & Plasma Surface Finishing, Chiang Mai, Thailand, Nov. '04.
- 2004 Int'l Advisory Committee, Int'l Conf. on Plasma Physics & Controlled Fusion, Alushta, Ukraine, Sep. '04.
- 2004 Int'l Advisory Committee, 7th Asia-Pacific Conf. on Plasma Science & Technology, Fukuoka, Japan, June '04.
- 2004 Int'l Advisory Committee, 7th Conf. on Modification of Materials with Particle Beams and Plasma Flows, Tomsk, Russia, July 2004.
- 2004 Symposium Organizer and Chair, 7th World Biomaterials Congress, Sydney, Australia, May 2004.
- 2004 Scientific Advisory Board, European Symp. on Amorphous Carbon Films, Strasbourg, France, May 2004
- 2004 Int'l Advisory Committee, Int. Symp. on Novel Materials Processing by Advanced Electromagnetic Energy Sources, Osaka, Japan, Mar '04.
- 2003 Program Committee, 30th IEEE International Conference on Plasma Science, Jeju, Korea, June 2-5, 2003
- 2003 Int'l Advisory Committee, 10th Int. Conf. on Ion Sources, Dubna, Russia, Sep. '03
- 2002 Int'l Advisory Committee, 6th Conf. on Modification of Materials with Particle Beams and Plasma Flows, Tomsk, Russia, Sep. 2002.
- 2002 Int'l Advisory Committee, Int'l Conf. on Plasma Physics & Controlled Fusion, Alushta, Ukraine, Sep. '02.
- 2002 Program Committee, 29th IEEE International Conference on Plasma Science, Banff, AB, Canada, May '02
- 2001 Program Committee, 28th IEEE International Conference on Plasma Science, Las Vegas, NV, June '01
- 2001 Int'l Advisory Committee, 9th Int. Conf. on Ion Sources, Berkeley, CA, Sep. '01
- 2000-02 Plasma Science & Applications Executive Committee, IEEE Nuclear & Plasma Sciences Society
- 2000 Int'l Program Committee, 5th Conf. on Modification of Materials with Particle Beams and Plasma Flows, Tomsk, Russia, Sep. 2000.
- 2000 Program Committee, 27th IEEE International Conference on Plasma Science, New Orleans, LA, June '00

- 1999 Advisory Committee, 5th Int. Workshop on Plasma-Based Ion Implantation, Kyoto, Japan, Dec '99
- 1999 Int'l Advisory Committee, 8th Int. Conf. on Ion Sources, Kyoto, Japan, Sep. '99
- 1999 Int'l Advisory Committee, 2nd Asian-European Int. Conf. on Plasma Surface Engineering, Beijing, China, Sep. '99
- 1999 Program Committee, 11th Int. Conf. on the Surface Modification of Metals by Ion Beams, Beijing, China, Sep. '99
- 1999 Session organizer, 26th IEEE Int. Conf. on Plasma Science, Monterey, CA, June '99
- 1998 Int'l Advisory Committee, Environmentally-Conscious Innovative Materials Processing with Advanced Energy Sources, Kyoto, Japan, Nov. '98
- 1998 Session organizer, 25th IEEE Int. Conf. on Plasma Science, Raleigh, NC, June '98
- 1997 Program Committee, 10th Int. Conf. on the Surface Modification of Metals by Ion Beams, Gatlinburg, TN, Sep. '97
- 1997 Int'l Advisory Committee, 7th Int. Conf. on Ion Sources, Catania, Italy, Sep. '97
- 1996 Local Program Committee, 17th Int Symposium on Discharges & Electrical Insulation in Vacuum, Berkeley, CA, July '96
- 1996 Int'l Program Committee, 2nd Int. Conf. on the Modification of the Properties of Surface Layers of Non-Semiconducting Materials using Particle Beams, Sumy, Ukraine, June '96
- 1995 Int'l Advisory Committee, 6th Int. Conf. on Ion Sources, Vancouver, Canada, Sep. '95
- 1995 Program Committee, IEEE Particle Accelerator Conference, Dallas, TX, June '95
- 1995 Int'l Advisory Committee, Int. Symposium on Beam Technologies, Dubna, Russia, March '95
- 1994 Chairman, Symp. on Industrial Applications of Ion Beams APS General Meeting, Washington, DC, March '94
- 1993 Vice Chairman, Plasma Science & Applications Executive Committee, IEEE Nuclear & Plasma Sciences Society
- 1991-93 Plasma Science & Applications Executive Committee, IEEE Nuclear & Plasma Sciences Society
- 1993 Int. Advisory Committee and Program Committee, 5th Int. Conf. on Ion Sources, Beijing, Aug '93
- 1993 Session organizer, IEEE Int. Conf. on Plasma Science, Vancouver, Canada, June '93
- 1992 Session organizer, IEEE Int. Conf. on Plasma Science, Tampa, Florida, June '92
- 1991 Int'l Advisory Committee, 4th International Conference on Ion Sources, Darmstadt, Germany, Sep. '91
- 1989 Chairman, Int. Conf. on Ion Sources, Berkeley, CA, July '89
- 1988 Program Committee, 7th Int. Conf. on Ion Implantation Technology, Kyoto, Japan, June '88
- 1988 Co-Chairman, Topical Sessions on Ion Implantation, APS March Meeting, New Orleans, LA, March '88
- 1986 Chairman, Sessions on Ion Sources, 6th Int. Conf. on Ion Implantation Technology, Berkeley, CA, July '86

Publications Summary:

Books:

- *The Physics and Technology of Ion Sources, Second Revised and Extended Edition*, Ian Brown, ed. (Wiley-VCH, Berlin, 2004).
- *The Physics and Technology of Ion Sources*, Ian Brown, ed. (Wiley, N.Y., 1989).
- *Emerging Application of Vacuum Arc Produced Plasma, Ion and Electron Beams*, E.M. Oks and I.G. Brown, eds., NATO Science Series, Vol. 88, (Kluwer, Netherlands, 2002).

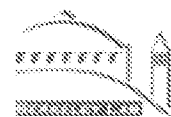
Book Chapters:

Contributions to the following books:

- *The Physics and Technology of Ion Sources, Second Edition*, (Wiley-VCH, Berlin, 2004).
- *Emerging Application of Vacuum Arc Produced Plasma, Ion and Electron Beams*, (Kluwer, Netherlands, 2002).
- *Handbook of Plasma Immersion Ion Implantation and Deposition*, (Wiley, New York, 2000).
- *Annual Review of Materials Science*, (Annual Reviews, Inc., Palo Alto, CA, 1998).
- *Handbook of Ion Sources*, (CRC Press, Boca Raton, Fla, 1995).
- *Vacuum Arc Science and Technology*, (Noyes, N.Y., 1995).
- *Encyclopedia of Applied Physics*, (VCH/AIP Press, N.Y., 1995).
- *The Physics and Technology of Ion Sources*, (Wiley, N.Y., 1989).

Refereed Journals:

About 400 papers published in refereed journals, and about 300 conference presentations, including about 30 Invited / Keynote presentations.



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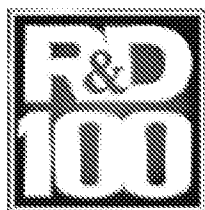


July 7, 2005

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Berkeley Lab Wins Three Prestigious R&D 100 Awards for Technology Advances

Contact: Pam Seidenman, (510) 486-6461, psseidenman@lbl.gov



BERKELEY, CA – Scientists at the Department of Energy's Lawrence Berkeley National Laboratory have garnered three R&D 100 Awards, *R&D Magazine's* picks for the 100 most technologically significant new products of 2005. This is the first time since 1992 that Berkeley Lab has captured three of the prestigious awards in a single year, bringing the Lab's total of these "Oscars of Invention" to 37.

The 2005 awards go to:

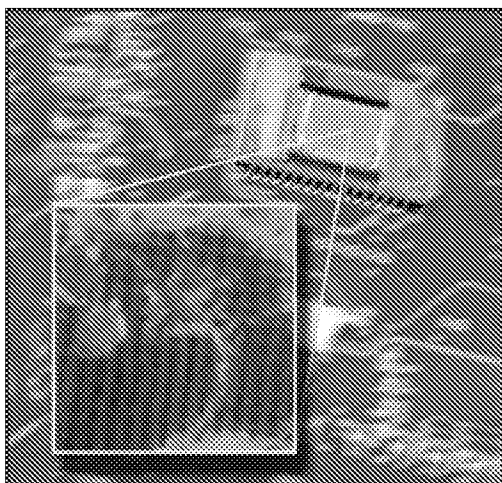
- The *Neural Matrix CCD*, created by members of the Life Sciences, Accelerator and Fusion Research, and Engineering divisions, being further developed in tandem with co-award winners Cellular Bioengineering, Inc. (CBI) of Honolulu, Hawaii — the only state-of-the-art technology for patterning and monitoring networks of growing neurons;
- The *Optical Sound Restoration System*, from the Physics Division — the first "touchless" technology for restoring early sound recordings on metal foil, wax, plastic, and other media, regardless of scratches, warping, mold, and other effects of age;
- *Ion Mobility Analysis*, developed by members of the Life Sciences and Engineering divisions — providing fast, inexpensive, accurate measurement and counting of individual lipoprotein particles to assess the risk of coronary artery disease.

"These awards demonstrate that DOE scientists and researchers are hard at work developing the technologies of the future," said Secretary of Energy Samuel W. Bodman. "In the past, breakthroughs like these have played an important role in both our economic and national security."

"We're looking for products and processes that can change people's lives for the better, improve the standard of living for large numbers of people, save lives, promote good health, and clean up the environment," say the editors of *R&D Magazine*, which has handed out R&D 100 Awards annually since 1963.

"Two of this year's winning technologies have already been licensed by the Technology Transfer Department to companies that are working to bring them to market and benefit the public," says Pam Seidenman of Berkeley Lab's Technology Transfer Department, which aided the scientists in crafting the complex and demanding applications, "and the third may be deployed by the Library of Congress."

The Neural Matrix CCD



The Neural Matrix CCD monitors living neurons on an electronic chip.

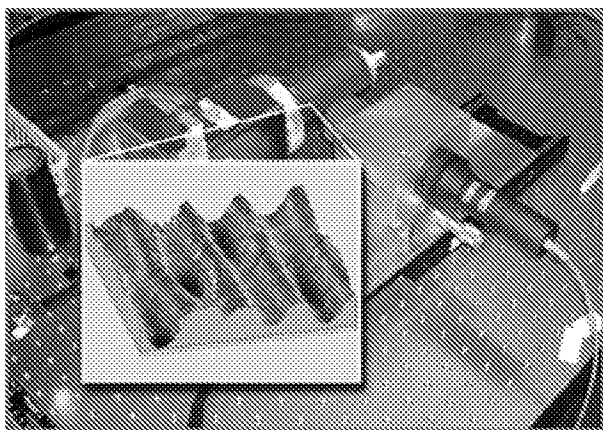
Initially designed to help scientists learn how neurons in the human nervous system communicate with each other, the Neural Matrix CCD is the first step in creating combined biological and electronic chip implants that can provide neural networks of living, interconnected nerve cells for testing drugs and sensing toxins for homeland security — and, someday, restoring the use of limbs and eyesight and improved mental functions in patients.

In 2004, a team of scientists and engineers led by Eleanor Blakely and Ian Brown, including Kathy Bjornstad, Jim Galvin, Othon Monteiro, and Chris Rosen, developed a technique for growing the first large arrays of networked neurons on the prepared optical surface of a charge-coupled device (CCD). Diamond-like carbon deposited on the optical surface of the CCD is patterned in fine detail,

then coated by a continuous layer of cell-culture collagen, and finally seeded with neurons. The coated CCDs now have millions of individual sensors that can record changes in electrical potential from individual nerve cells in real time while precisely mapping each neuron's activity within the neural network.

Development of the Neural Matrix CCD is now under way in collaboration with Cellular Bioengineering Incorporated (CBI), a life sciences company focusing on the bioengineering of tissues for the replacement and repair of injured and diseased organs; CBI researchers Amy Weintraub, Ryan Littrell, Kevin T.C. Jim, Kevin Chinn, Leslie Isaki, and Geming Lui have contributed. Current research focuses on detection of neurotoxins and is funded by the Defense Advanced Research Projects Agency (DARPA).

The Optical Sound Restoration System



The Optical Sound Restoration System produces 2-D or 3-D images of surfaces, like this millimeter-square image of the grooves on a recorded cylinder, from which a computer reconstructs the original sound.

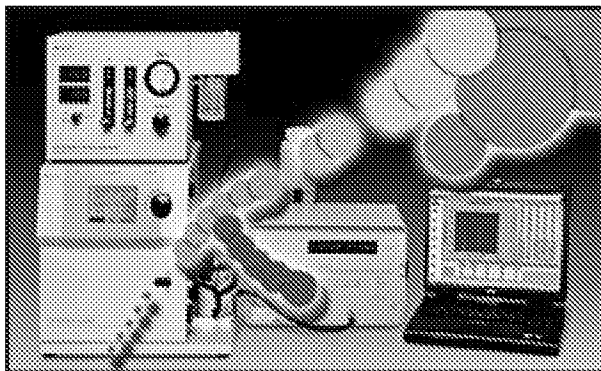
Since 1877, when Thomas Edison recorded "Mary had a Little Lamb" on a tinfoil cylinder, recordings on diverse media like foil and wax cylinders, shellac and vinyl discs, acetate sheets, and plastic dictation belts have captured an incredible range of material: the singing voice of Enrico Caruso; the poetry of Edna St. Vincent Millay; the lost language of Ishi, the last Yahi Indian; the words of historical figures like Alfred Lord Tennyson and Amelia Earhart. Many of these can no longer be played and are too delicate for traditional restoration.

By adapting methods for measuring particle tracks in high-energy physics experiments, Carl Haber and Vitaliy Fadeyev created a noncontact method for restoring damaged and fragile

mechanical recordings. Without ever touching the cylinder, disk, or belt, their technology produces two- or three-dimensional digital images of its surface, which can be computer analyzed to reconstruct the original recorded sound in high fidelity.

Archivists estimate that 40 percent of the millions of recordings in the world's major sound archives — including the U.S. Library of Congress, the British National Library, the New York Public Library, the Edison National Historical Site in New Jersey (with its trove of cylinders), and historical archives in major universities and private collections — could benefit from restoration with the Berkeley Lab technology.

Ion Mobility Analysis



Ion Mobility Analysis makes use of a differential mobility analyzer and particle counter (left), an electrospray unit (center), and a computer to sort and count the numerous classes and subclasses of lipoprotein particles.

For over fifty years, standard tests that measure levels of total cholesterol, "bad" low-density lipoproteins (LDL), "good" high-density lipoproteins (HDL), and triglycerides have been used to evaluate the risk of heart disease. But half the heart attacks in the U.S. each year strike people with normal cholesterol levels. The distribution of size, quantity, and type of lipoprotein particles — which are much more various than standard tests can account for — provides a far better indicator of whether or not someone is at risk.

Henry Benner, Ron Krauss, and Patricia Blanche developed ion mobility analysis to measure the

size distribution and count the number of individual particles in all classes of lipoproteins in a single analytical step. The technology measures the drift of charged, aerosolized lipoproteins as they are dragged through air by the force of an electric field. Charge and drift velocity separate the particles by weight and size. The sorted particles travel to a detector for counting.

Ion mobility analysis is faster and potentially less expensive than current technologies and is likely to be used more frequently in the evaluation and management of risk for cardiovascular disease. Its ability to study the entire range of lipoprotein particles with unrivalled accuracy will make it a valuable tool for both clinical and research labs.

The R&D 100 Award-winning technologies were nominated by Berkeley Lab's Technology Transfer Department. All winners of the 2005 award will receive a plaque at *R&D Magazine's* formal awards banquet in Chicago on October 20.

Berkeley Lab is a U.S. Department of Energy national laboratory located in Berkeley, California. It conducts unclassified scientific research and is managed by the University of California. Visit our website at www.lbl.gov.

Additional Information

- More on the [Neural Matrix CCD](#)
- More on the [Optical Sound Restoration System](#)
- More on [Ion Mobility Analysis](#)
- More about Berkeley Lab's [Technology Transfer Department](#)
- Contact [Cellular Bioengineering, Inc. \(CBI\)](#)
- More about [R&D Magazine](#) and the [R&D 100 Awards](#)

[Top](#)